



Volunteer Lake Assessment Program Individual Lake Reports

KOLELEMOOK LAKE, SPRINGFIELD, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	610	Max. Depth (m):	6.7	Flushing Rate (yr ⁻¹)	0.9
Surface Area (Ac.):	99	Mean Depth (m):	4.1	P Retention Coef:	0.71
Shore Length (m):	2,900	Volume (m ³):	1,623,000	Elevation (ft):	1387

TROPHIC CLASSIFICATION

Year	Trophic class
1980	OLIGOTROPHIC
1996	OLIGOTROPHIC

KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

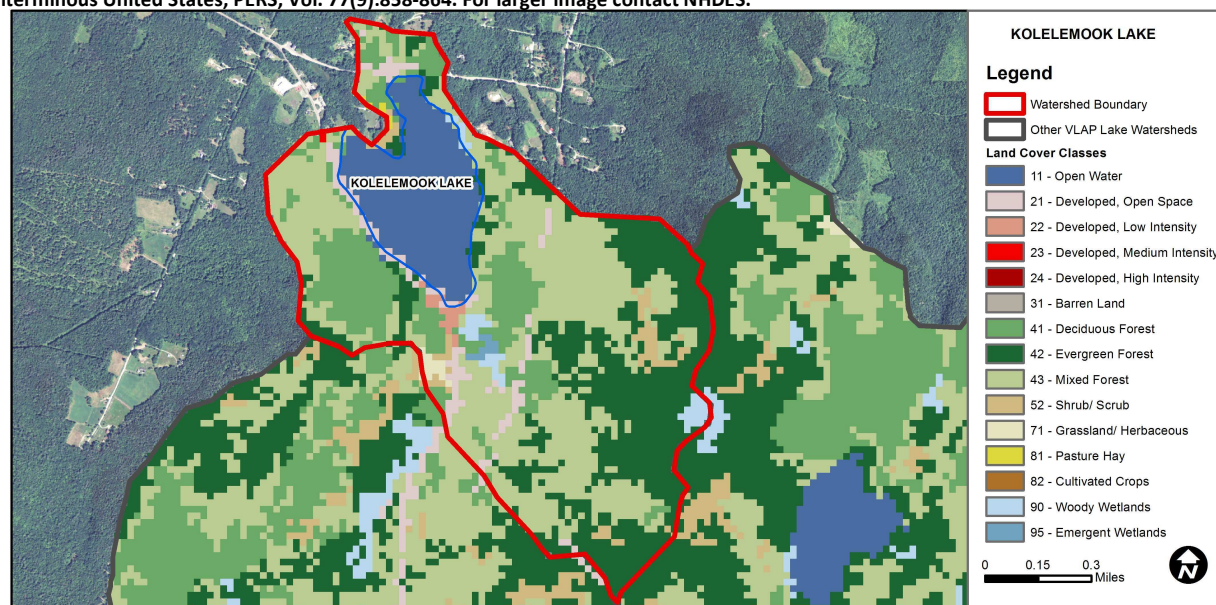
Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator and the chlorophyll a indicator is okay.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen saturation	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Good	The calculated median is from 5 or more samples and is < indicator and > 1/2 indicator.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

BEACH PRIMARY CONTACT ASSESSMENT STATUS

KOLELEMOOK LAKE - TOWN BEACH	Escherichia coli	Good	There are geometric means and all geometric means are < geometric mean criteria; and there has been a single sample exceedance.
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WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	13.7	Barren Land	0	Grassland/Herbaceous	0.47
Developed-Open Space	3.88	Deciduous Forest	14.7	Pasture Hay	0.2
Developed-Low Intensity	0.64	Evergreen Forest	26.33	Cultivated Crops	0
Developed-Medium Intensity	0.07	Mixed Forest	35.94	Woody Wetlands	1.58
Developed-High Intensity	0	Shrub-Scrub	2.16	Emergent Wetlands	0.34



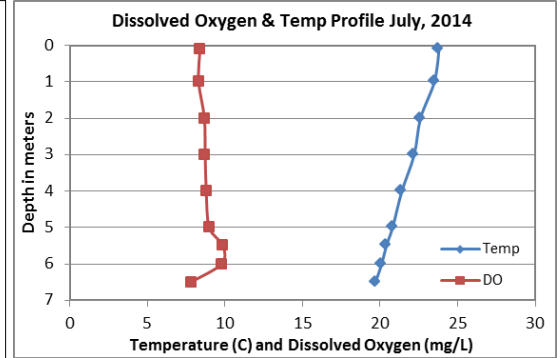
VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

KOLELEMOOK LAKE, SPRINGFIELD

2014 DATA SUMMARY

OBSERVATIONS AND RECOMMENDATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels decreased slightly from June through August and were much less than the state median. Historical trend analysis indicates significantly decreasing (improving) chlorophyll levels since monitoring began. We hope to see this continue!
- ◆ **CONDUCTIVITY/CHLORIDE:** Deep spot conductivity levels were stable from June through August and was slightly greater than the state median. Deep spot chloride levels were slightly greater than the state median in July. Average conductivity levels increased slightly from 2013 and historical trend analysis indicates significantly increasing (worsening) epilimnetic (upper water layer) conductivity since monitoring began.
- ◆ **TOTAL PHOSPHORUS:** Deep spot phosphorus levels were very low on each sampling event and much less than the state median. Historical trend analysis indicates significantly decreasing (improving) epilimnetic phosphorus since monitoring began. We hope to see this continue!
- ◆ **TRANSPARENCY:** Transparency was very good and remained fairly stable from June through August. Average transparency was much better than the state median and the Secchi disk was almost visible on the lake bottom. Historical trend analysis indicates significantly increasing (improving) transparency since monitoring began.
- ◆ **TURBIDITY:** Deep spot turbidity was low on each sampling event.
- ◆ **pH:** Deep spot pH levels were less than the desirable range 6.5-8.0 units on the June sampling event. pH levels improved in July and August and the 2014 average pH levels were within the desirable range. However, historical trend analysis indicates significantly decreasing (worsening) epilimnetic pH since monitoring began.
- ◆ **DISSOLVED OXYGEN/TEMP:** Dissolved oxygen levels were good throughout the water column and sufficient to support aquatic life. The slight increase in dissolved oxygen between 5.0 and 6.0 meters along with a transparency of approximately 6.0 meters, indicates a layer of algae at that depth.
- ◆ **RECOMMENDED ACTIONS:** Continue implementation of the low salt zone along the western shore of the lake to help decrease conductivity levels in the lake. The improving chlorophyll, transparency and phosphorus trends are a great sign. Chlorophyll and phosphorus are at very low levels, and transparency is very good. We anticipate these parameters will stabilize in the near future. Keep up the great work!



NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: > 230 mg/L (chronic)

E. coli: > 88 cts/100 mL – public beach

E. coli: > 406 cts/100 mL – surface waters

Turbidity: > 10 NTU above natural level

pH: between 6.5-8.0 (unless naturally occurring)

Station Name	Table 1. 2014 Average Water Quality Data for KOLELEMOOK LAKE							
	Alk. mg/l	Chlor-a ug/l	Chloride mg/l	Cond. uS/cm	Total P ug/l	Trans. m		Turb. ntu
						NVS	VS	
Epilimnion	7.1	1.77	19	97.0	5	6.06	6.48	0.58
Hypolimnion			19	96.5	5			0.67

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L

Chlorophyll-a: 4.58 mg/m³

Conductivity: 40.0 uS/cm

Chloride: 4 mg/L

Total Phosphorus: 12 ug/L

Transparency: 3.2 m

pH: 6.6

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	Worsening	Data significantly increasing.	Chlorophyll-a	Improving	Data significantly decreasing.
pH (epilimnion)	Worsening	Data significantly decreasing.	Transparency	Improving	Data significantly increasing.
			Phosphorus (epilimnion)	Improving	Data significantly decreasing.

